CLAIM AMENDMENTS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-20. (canceled)

21. (new) A method of immunizing bovine animals comprising administering to bovine animals at least one inactivated or attenuated *Mycoplasma bovis* biotype, whereby the incidence of mastitis in the bovine animals is reduced.

22. (new) The method of claim 21 comprising administering at least one inactivated *Mycoplasma bovis* biotype to a plurality of cows in a herd of cows and determining that the incidence of mastitis caused by *Mycoplasma bovis* in the herd before administering was greater than the incidence of mastitis caused by *Mycoplasma bovis* in the herd after administering.

23. (new) The method of claim 22 comprising administering at least one inactivated *Mycoplasma bovis* biotype to at least about 50% of the herd.

24. (new) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered together with an adjuvant.

25. (new) The method of claim 24 where the adjuvant is an aluminum hydroxide-oil emulsion; a mineral, vegetable, or fish oil-water emulsion; a water-oil-water emulsion; incomplete Freund's adjuvant; *E. coli* J5; dextran sulfate; iron oxide; sodium alginate; Bacto-Adjuvant; a synthetic polymer; Carbopol; a poly-amino acid; a co-polymer of amino acids; saponin; carrageenan; REGRESSIN®; N, N-dioctadecyl-N'-N'-bis(2-hydroxyethyl) propanediamine; a long chain polydispersed β(1,4) linked mannan polymer interspersed

with O-acetylated groups; deproteinized cell wall extracts from a non-pathogenic strain of *Mycobacterium*; mannite monooleate; paraffin oil; or muramyl dipeptide.

26. (new) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered together with a pharmaceutically acceptable excipient.

27. (new) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered orally, intranasally, intratracheally, intramuscularly, intamammarily, subcutaneously, intravenously, or intradermally.

28. (new) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered by injection, inhalation, ingestion, or infusion.

29. (new) The method of claim 21 where the *Mycoplasma bovis* biotype has been inactivated

30. (new) The method of claim 29 where the *Mycoplasma bovis* biotype has been inactivated by treatment with: formalin, azide, freeze-thawing, sonication, heat, sudden pressure drop, detergent, lysozyme, phenol, proteolytic enzymes, β-propiolactone, Thimerosal, or binary ethyleneimine.

31. (new) The method of claim 30 where the *Mycoplasma bovis* biotype has been inactivated by treatment with β-propiolactone.

32. (new) The method of claim 21 where at least two inactivated *Mycoplasma bovis* biotypes are administered.

33. (new) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are selected from the group consisting of Biotype A, Biotype B, and Biotype C.

34. (new) The method of claim 32 where at least 10^8 cell equivalents of each *Mycoplasma bovis* biotype are administered.

35. (new) The method of claim 32 where approximately 10^8 cell equivalents of each *Mycoplasma bovis* biotype are administered.

36. (new) The method of claim 32 where at least approximately 10^5 cell equivalents of each *Mycoplasma bovis* biotype are administered.

37. (new) The method of claim 32 where approximately 10^5 cell equivalents of each *Mycoplasma bovis* biotype are administered.

38. (new) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are administered separately.

39. (new) The method of claim 21 where at least two inactivated *Mycoplasma bovis* biotypes and an antigen derived from another pathogen are administered.

40. (new) The method of claim 39 where the antigen from another pathogen is from an attenuated or inactivated virus.

41. (new) The method of claim 39 where the antigen from another pathogen is selected from the group consisting of antigens from *Staphylococcus aureus, Pasteurella hemolytica, Pasteurella multocida, Hemophilus somnus*, Bovine Respiratory Syncytial Virus, *E. coli*, and the organism causing Infectious Bovine Rhinotrachial Disease.

42. (new) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are genetically different as determined by an analysis of DNA or RNA from the biotypes.

43. (new) The method of claim 42 where the analysis is PCR fingerprinting, analysis of ribosomal RNA, or analysis of DNA polymorphisms.

44. (new) The method of claim 43 where the analysis is by PCR fingerprinting.

45. (new) The method of claim 44 where the PCR fingerprinting uses arbitrarily chosen primers.

46. (new) The method of claim 44 where the PCR fingerprinting uses as primers 5' NNN NCG NCG NCA TCN GGC 3' (SEQ ID NO:1) and 5' NCG NCT TAT CNG GCC TAC 3' (SEQ ID NO:2).

47. (new) The method of claim 32 where the at least two *Mycoplasma bovis* biotypes have been identified as being different biotypes by a process comprising:
(a) isolating DNA from the biotypes;
(b) amplifying the DNA by PCR;
(c) separating the amplified DNA by gel electrophoresis; and
(d) comparing the resulting patterns from the gel electrophoresis to identify the different biotypes.

48. (new) The method of claim 32 where the at least two *Mycoplasma bovis* biotypes are administered in a specific ratio.

49. (new) The method of claim 32 where the at least two *Mycoplasma bovis* biotypes are grown separately as pure cultures, inactivated, and combined together in equal amounts before being administered to the animal.

50. (new) A method for immunizing bovine animals comprising administering to bovine animals an antigenic component from at least one inactivated or attenuated *Mycoplasma bovis* biotype, whereby the incidence of mastitis in the bovine animals is reduced.

51. (new) The method of claim 50 where antigenic components from at least two *Mycoplasma bovis* biotypes are administered.

52. (new) The method of claim 21 where the administering results in greater milk production, greater weight gain, or less clinical disease in the bovine animal.

53. (new) A method of immunizing bovine animals comprising:
(a) testing samples from bovine animals for the presence of *Mycoplasma bovis* biotypes, thereby identifying specific *Mycoplasma bovis* biotypes in the samples;
(b) preparing a vaccine by inactivating at least 10^5 cell equivalents of at least one of the *Mycoplasma bovis* biotypes identified in step (a); and
(c) administering to the bovine animals the vaccine of step (b),
whereby the incidence of mastitis in the bovine animals is reduced.

54. (new) The method of claim 53 where the sample is milk.

55. (new) The method of claim 53 where step (a) comprises genetic analysis of DNA or RNA from the *Mycoplasma bovis* biotypes.

56. (new) The method of claim 55 where the genetic analysis is PCR fingerprinting, analysis of ribosomal RNA, or analysis of DNA polymorphisms.

57. (new) The method of claim 56 where the genetic analysis is PCR fingerprinting.